

## **REMARKS**

Claims 1-36 and 38-82 were examined and were rejected. Applicants amend claims 1, 7, 22, 29, 48, 60 and 76 and reserve the right to prosecute the former claims in a continuation or divisional application. Applicants specify that the amendments herein to the claims are to clarify the "geometric shape" in claims 1, 22, 48, and 76; and to clarify the "90 percent" of claims 7, 29, and 60. Applicants respectfully request reconsideration of pending claims 1-36 and 38-42, as amended, in view of at least the following remarks.

### **I. Claims Rejected Under 35 U.S.C. §102**

The Patent Office rejects claims 1-6, 8-15, 18-21 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,613,861 issued to Smith, et al. ("Smith").

Applicants respectfully disagree and submit that amended claim 1 is not anticipated by Smith for at least the reason that Smith does not describe the claim 1 limitations of one of a first element material and a second different element material, having a property that may be transformed in response to an external stimulus applied to one of the first and second element materials such that upon transformation, a geometric shape of an interconnection element is modified.

The Patent Office argues that bending of contact 15 "is a result of an external force or factor (for example, high temperature)" and that thus it seems that an external stimulus is applied to contact 15. However, this is not what Smith teaches or describes. Specifically, Smith teaches that the elastic properties of the spring contact of Smith are maintained despite thermal variations and mechanical shock. (Smith, col. 3, lines 5-10). For example, Smith teaches that the bend in contact 15 is a result of a stress gradient introduced into contact 15 when contact 15 is formed. (Smith, col. 5, lines 10-11). More particularly, Smith describes the stress gradient introduced into spring contact 15 when spring contact 15 is deposited. (Smith, col. 15, lines 11-15). Thus, the stress gradient may be introduced during introduction of metal layers 16 which form spring contact 15, such as by altering the stress inherent in each of the sublayers 16-1 to 16-m of the metal layer 16, which forms spring contact 15. (Smith, col. 6, lines 49 through col. 7, line 25).

Then, the stress gradient in spring contact 15 causes spring contact 15 to bend into the shape of an arc when spring contact 15 is released from substrate 14 (See Smith, col. 3, lines 10-14 and lines 19-22). For example, Smith describes spring contact 15 being released from substrate 14 when freed portion 11 of spring contact 15 is released from insulating underlayer 13. (See Smith, Figures 11-12, col. 7, lines 42-47, and col. 8, lines 43-48). Thus, Smith describes spring contact 15 bending as a result of the stress gradient formed in spring contact 15 and present in spring contact 15 when spring contact 15 is released from substrate 14 (See Smith, col. 5, lines 19-21 and col. 7, lines 42-47). Smith does not teach spring contact 15 bending as a result of an external force or factor such as high temperature applied to spring contact 15 (See Smith, col. 3, lines 5-10).

Consequently, the Patent Office has not identified and the Applicants are unable to find any description in Smith, or any teaching, of an interconnection element having a material with a property that may be modified in response to an external stimulus such that a geometric shape of the interconnection element is modified, as required by amended independent claim 1. Specifically, according to independent claim 1, for example, an interconnection element may include a first and second material coupled together where one of the material has a property such that it may be modified in response to a stimulus (e.g., such as by having a property such that a volume of the material is modified in response to a temperature treatment) to cause a geometric shape of the interconnection element to be modified, such as to be modified when the volume of the material is reduced. Hence, Applicants respectfully request that the Patent Office withdraw the rejection of amended independent claim 1 under 35 U.S.C. 102(b) as being anticipated by Smith.

The Patent Office notes that many materials change their shape in the presence of a stimulus such as high temperature. Claim 1, however, describes a stimulus modification to a shape suitable for use as an interconnection element.

Applicants respectfully submit that dependent claims 2-21 are allowable for at least the same reasons mentioned above with respect to amended independent claim 1 from which they depend, and Applicants respectfully request that the Patent Office withdraw the rejection of dependent claims 2-21.

In the "Response to Argument" section on page 8, last paragraph through page 9, first paragraph of the current Office Action the Patent Office asserts that a geometric shape of spring contact 15 will be modified as a result of "change of temperature, pressure, and time of exposure to these factors". Applicants disagree that such a modification is taught, inherent, or described in Smith. Specifically, Smith teaches away from such modification by teaching that a contact, according to Smith, has elastic properties enabling it to maintain physical contact with a contact pad despite variations in pressure, temperature, and mechanical shock. (See Smith, col. 3, lines 5-10).

On the other hand, in addition to the requirements of claim 1, dependent claim 4 requires a first volume of an elemental material be transformed to a lesser second volume. Hence, for at least the reason that Smith teaches away from such modification, Applicants respectfully request the Patent Office withdraw the rejection with respect to dependent claim 4 for this second reason.

Furthermore, in addition to the requirements of claim 1 and claim 4, dependent claim 6 requires that the transformation in volume of an elemental material of claim 4 be modified in response to exposure to heat. Hence, for at least the reason that Smith teaches away from such modification, Applicants respectfully request the Patent Office withdraw the rejection of dependent claim 6 for this second reason.

## **II. Claims Rejected Under 35 U.S.C. §103**

### **A. Claim 7**

The Patent Office rejects claim 7 under 35 U.S.C. § 103(a) as obvious over Smith. In the "Response to Argument" section on page 8, last paragraph through page 9, first paragraph of the current Office Action the Patent Office adds "it is assumed that the materials used by Smith are adapted to transform their volume with 90 percent of volume change at a combination of above mentioned factors." Amended claim 7 requires that a transformation in volume of an elemental material result in a second volume of about 90 percent of the pre-transformation volume, in response to exposure to heat.

First, for a third time, Applicants respectfully traverse the Patent Office's assumption that materials used by Smith are adapted to transform their volume as required by amended dependent claim 7 and request the Patent Office cite a reference in support of this position, in accordance with MPEP 2144.03. Thus, for this first reason, Applicants request the Patent Office withdraw the rejection of amended dependent claim 7.

Second, as Applicants pointed out above with respect to claims 1, 4, and 6, it is not taught in Smith that spring contact 15 includes a property that may be modified in response to heat, because Smith teaches against such modifications. Hence, for at least this second reason, Applicants respectfully request the Patent Office withdraw the rejection of amended dependent claim 7.

B. Claims 12-13

The Patent Office rejects claims 12 and 13 under 35 U.S.C. § 103(a) as obvious over Smith in view of Eldridge et al. (U.S. Patent No. 5,832,601) ("Eldridge"). To the extent the rejection applies to the amended claims, Applicants respectfully traverse the rejection for at least the following reason. Applicants respectfully submit that Eldridge does not remedy the defects of Smith discussed above regarding amended independent claim 1. Thus, Applicants respectfully request that the Patent Office withdraw the rejection to claims 12 and 13.

C. Claims 16-17, 22-28, 30-32, 35, 38-44, 46, 48-51, 55-59, 61-63, 66, 69-79

The Patent Office rejects claims 16-17, 22-28, 30-32, 35, 38-44, 46, 48-51, 55-59, 61-63, 66, and 69-79 under 35 U.S.C. § 103(a) as obvious over Smith in view of Faraci, et al. (U.S. Patent No. 5,810,609) ("Faraci"). To the extent that the rejection applies to the amended claims, Applicants respectfully traverse the rejection.

(1) Claims 16-17

Applicants respectfully submit that dependent claims 16-17 are allowable for at least the same reason as allowable independent claim 1 from which they depend.

Applicants also respectfully request that the Patent Office withdraw the rejection to claims 16-17, as Faraci does not remedy the defects of Smith discussed above regarding independent allowable claim 1, from which claims 16-17 depend.

(2) Claims 22-28, 30-32, 35, 38-44 & 46

Regarding independent claim 22, Applicants respectfully disagree for at least the reason that the cited references do not teach or suggest amended independent claim 22's limitations of one of a first element material, and a second different element material having a property that may be transformed in response to an external stimulus applied to one of the first and second element materials such that upon transformation of the element material, a shape of an interconnection element is transformed.

Applicants respectfully submit that Faraci does not remedy the defects of Smith discussed above regarding the above limitations of claim 22 corresponding to those cited further above for claim 1. Specifically, 1, Smith fails to teach or suggest a material having a property that may be transformed in response to an external stimulus.

Moreover, the Patent Office has not identified, and the Applicants have been unable to find, any teaching or suggestion in Faraci that accounts for the above cited limitation of claim 22. Hence, Applicants assert that neither Smith, Faraci, nor the combination teach, suggest or describe the above cited limitation of claim 22, and, thus, respectfully request that the Patent Office withdraw the rejection of amended independent claim 22 under 35 U.S.C. §103(a) over Smith in view of Faraci.

Applicants respectfully submit that dependent claims 23-28, 30-32, 35, 38-44, and 46 are allowable for at least the same reasons as allowable independent claim 22, discussed above, from which they depend. Applicants respectfully request that the Patent Office withdraw the rejection to claims 23-28, 30-32, 35, 38-44, and 46.

(3) Claims 48-51, 55-59, 61-63, 66 & 69-75

Regarding independent claim 48, Applicants respectfully disagree for at least the reason that the cited references do not teach or suggest amended independent claim 48's limitations corresponding to those cited above for amended claims 1 and 22.

Therefore, for the same reasons as explained above for claims 1 and 22, Applicants submit that neither Smith, Faraci, nor the combination teach, suggest or describe the

limitations for amended independent claim 48 corresponding to those discussed above regarding claims 1 and 22. Hence, Applicants respectfully request that the Patent Office withdraw the rejection of amended independent claim 48 under 35 U.S.C. §103(a) as being unpatentable over Smith in view of Faraci.

Applicants respectfully submit that dependent claims 49-51, 55-59, 61-63, 66, and 69-75 are allowable for at least the same reasons as allowable independent claim 48 from which they depend, and Applicants respectfully request that the Patent Office withdraw the rejection to those claims.

(4) Claims 76-79

Regarding independent claim 76, Applicants respectfully disagree for at least the reason that the cited references do not teach or suggest amended claim 76's limitations of a property that may be transformed in response to an external stimulus applied to one of the first and second element materials such that upon transformation, a shape of the interconnection element is transformed. Applicants submit that the cited references do not teach, suggest or describe the above limitation of claim 76 for at least the reasons discussed above, with respect to independent claim 48. Thus, Applicants respectfully request that the Patent Office withdraw the rejection to claim 76.

Applicants respectfully submit that dependent claims 77-79 are allowable for at least the same reasons as allowable claim 76 from which they depend, and Applicants respectfully request that the Patent Office withdraw the rejection to those claims.

D. Claims 33 and 64

The Patent Office rejects dependent claims 33 and 64 under 35 U.S.C. § 103(a) as obvious over Smith in view of Eldridge. To the extent that the rejection applies to the amended claims, Applicants respectfully traverse the rejection for at least the reasons noted above with respect to claims 22 and 48 from which claims 33 and 64 depend. Moreover, regarding claim 33, Applicants respectfully submit that Eldridge does not remedy the defects of Smith discussed above regarding claim 22. Applicants respectfully request that the Patent Office withdraw the rejection to claim 33.

Similarly, claim 64, Applicants respectfully submit that Eldridge does not remedy the defects of Smith discussed above regarding claim 48. Applicants respectfully request that the Patent Office withdraw the rejection to claim 64.

E. Claims 29, 34, 60, and 65

The Patent Office rejects dependent claims 29, 34, 60, and 65 under 35 U.S.C. §103(a) as obvious over Smith in view of Faraci. The Patent Office states, "It would have been obvious to one having ordinary skill in the art at the time the invention was made to discover the claimed quantitative characteristics of the transformability volume and percent of spring material in the interconnection element." (Final Office Action, page 7) To the extent that the rejection applies to the amended claims, Applicants respectfully traverse the rejection, and request that the Patent Office cite a reference in support of changing about ninety percent of the volume of the interconnect element, in accordance with MPEP §2144.03. Hence, for this first reason, Applicants respectfully request that the Patent Office withdraw the rejection of claims 29, 34, 60, and 65 as being unpatentable over Smith in view of Faraci.

In addition, regarding claims 29 and 34, Applicants respectfully submit that Faraci does not remedy the defects of Smith discussed above regarding claim 22. Applicants respectfully request that the Patent Office withdraw the rejection to claims 29 and 34 for this second reason.

Also, regarding claims 60 and 65, Applicants respectfully submit that Faraci does not remedy the defects of Smith discussed above regarding claim 48. Applicants respectfully request that the Patent Office withdraw the rejection to claims 60 and 65 for this second reason.

F. Claims 34, 36, 47, 52-54, 65, 67, and 80-82

The Patent Office rejects dependent claims 34, 36, 47, 52-54, 65, 67, and 80-82 under 35 U.S.C. §103(a) as obvious over Smith in view of Faraci and further in view of U.S. Patent No. 5,772,451 issued to Dozier II, et al. ("Dozier").

Regarding claims 34, 36, and 47, Applicants respectfully submit that Faraci and Dozier do not remedy the defects of Smith discussed above regarding claim 22. In addition, Applicants respectfully submit that there is no motivation or suggestion to combine Faraci and Dozier with Smith to remedy the defects of Smith. Applicants respectfully request that the Patent Office withdraw the rejection to claims 34, 36, and 47.

Regarding claims 52-54, 65, and 67, Applicants respectfully submit that Faraci and Dozier do not remedy the defects of Smith discussed above regarding claim 48, and that there is no motivation or suggestion to combine Faraci and Dozier with Smith to remedy the defects of Smith. Applicants respectfully request that the Patent Office withdraw the rejection to claims 52-54, 65, and 67.

Regarding claims 80-82, Applicants respectfully submit that Faraci and Dozier do not remedy the defects of Smith, discussed above regarding claim 76, and that there is no motivation or suggestion to combine Faraci and Dozier with Smith to remedy the defects of Smith. Applicants respectfully request that the Patent Office withdraw the rejection to claims 80-82.

G. Claim 45

The Patent Office rejects dependent claim 45 under 35 U.S.C. §103(a) as being unpatentable over Smith in view of Faraci and further in view of Khandros et al. (U.S. Patent No. 5,994,152) ("Khandros"). To the extent that the rejection applies to the amended claim, Applicants respectfully traverse the rejection.

Applicants respectfully submit that Faraci and Khandros do not remedy the defects of Smith discussed above regarding claim 22. Also, Applicants respectfully submit that there is no motivation or suggestion to combine Faraci and Khandros with Smith, to remedy the defects of Smith. Applicants respectfully request that the Patent Office withdraw the rejection of claim 45.



## CONCLUSION

In view of the foregoing, it is believed that all claims now pending (1) are in proper form, (2) are neither obvious nor anticipated by the relied upon art of record, and (3) are in condition for allowance. A Notice of Allowance is earnestly solicited at the earliest possible date. If the Patent Office believes that a telephone conference would be useful in moving the application forward to allowance, the Patent Office is encouraged to contact the undersigned at (310) 207-3800.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly, extension of time fees.

Respectfully submitted,

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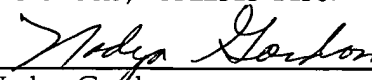
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